Presentation Overview

- Introduction
- Organization
- Spotlights
  - Capabilities
  - Facilities
  - Fleet Support
  - Computational Fluid Dynamics
  - Combatant Craft Division
  - Advanced Propulsor
  - Vendors
- Future Competitive Requirements
Naval Architecture and Engineering Department

- Cradle-to-Grave Naval Architecture and Engineering of Ships, Submarines, Boats & Craft, Unmanned Systems, and other Maritime Systems
- Early concept/design development and trade-off studies through cost analysis, detailed hydrodynamic and propulsor design, maneuvering and ship control, model testing, ship systems integration, full-scale trials and operational support.
Organizational Structure

Support Staff

- Deputy Department Head (Code 801)
- Director for IT Development (Code 802)
- Director for Science & Technology (Code 803)
- Senior Technical Management (Code 804)

- Chief Engineer (Code 805)
- Future Submarine Integration (Code 806)
- Business Operations (Code 807)
- Propulsor Design & Manufacturing (Code 808)
- Administrative Officer (Code 809)

Technical Divisions

- Ship and Submarine Acquisition Engineering (Code 81)
- Future Concepts & Design Integration (Code 82)
- Combatant Craft Little Creek (Code 83)
- Naval Architecture and Engineering (Code 84)

- Surface Ship Hydromechanics (Code 85)
- Submarine Maneuvering and Control (Code 86)
- Computational Fluid Dynamics & Propulsors (Code 87)
- Marine, Aviation & Unmanned Systems (Code 88)
- Facility Engineering and Operations (Code 89)
Spotlight on Ship Design

- Flexibility
- Modularity
- Cost Engineering
- Design Tools
- Future Concepts

Related contracts: Ship cost estimating; Knowledge based services (KBS); Intelligent Systems; Model Design & Fabrication (MDF)
Spotlight on Testing Facilities

David Taylor Model Basin

- Regularly used since WWII for Resistance and Propulsion testing of Ships, Submarines, and submersible systems
- Wavemaking and high speed test capability
- Testing supports component design, modeling & simulation tool development

Maneuvering and Seakeeping Basin (MASK)

- Built in 1960’s and modernized in 2013
- World class wave-making capability
- Regularly used for seakeeping, maneuvering, and control system tests for ships and submarines
- Testing supports modeling and simulation tool development and fleet guidance

Several related large contracts and SAP procurements
Spotlight on Fleet Support Activities

**COLUMBIA-CLASS Submarine Design**
- Naval Architecture and Ship Design Management
- Propulsor Design, Development, and Manufacturing
- Ship Control System design and validation

**Surface Ship Model Testing**
- Performed in MASK and open water
- Characterize ship behaviors
- Identify safe and unsafe operating conditions to produce Fleet Guidance products
- Enhance simulation capabilities

**Boat and Craft In-Service Engineering**
- In-Service Engineering Agent
- Planning Yard / Marine Boatyard Services
- Distance Support
- Training and Familiarization

**Related contracts:** Knowledge based services (KBS); Intelligent Systems; Model Design & Fabrication (MDF); Several Little Creek Contracts
Spotlight on Computational Fluid Dynamics Capability

Long-Tall Sail

Short-Tall Sail

Duct Inlet

Rudder Trailing Edge

Stern Plane Trailing Edge

Related ongoing contracts:
MPCUGLES; CSRA FD11; SAP Procurements
Massively Parallel Computations on Unstructured Grid Large Eddy Simulation
Spotlight on Detachment

Combatant Craft Division

Full Spectrum
- Naval Architecture
- Design & Engineering
- Survivability
- Transportability
- Human Systems Integration
- Test & Evaluation
- Logistics
- Life Cycle Management
- Industrial Support

Full Life Cycle
- Craft Research & Development
- Craft Acquisition
- Craft Sustainment

Total Systems Engineering

Related contracts: Engineering services for combatant craft; Watercraft industrial support (WIS); Intelligent systems; Advanced systems prototyping

Distribution Statement A: Approved for Public Release; distribution unlimited.
Submarine propulsors are complex, Government Furnished Equipment (GFE), with long timelines for design and development, including stringent performance requirements and critical delivery dates.

C/808 is responsible for the design (design agent) and manufacture (shipbuilder) of submarine propulsors.
Propulsor Planning

- Coordinated production across CLB and VCS is required to support the “350 ship Navy” plan (as of 2017).
- Out-years suggest an inventory gap thereby emphasizing partnership with the Defense industrial base now.

![Graph showing projected propulsor contracts by fiscal year (FY)]
Examples for submarine propulsor production include:

1. **Casting (nickel-aluminum-bronze)**
   a. Casting inspection & qualification
   b. Weld repair
2. **Precision high speed machining**
   a. Vertical turning lathe
   b. 5-axis contour machining
3. **Forging (NAB, Monel)**
4. **Welding of large assemblies (incl. Inconel, Monel)**
5. **Blast & paint (high solids)**
6. **Non-destructive testing (PT, MT)**
7. **Composite GRP construction**
8. **Composite foam fills (e.g. syntactic foams)**

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**Six new propulsor manufacturing related contracts to be awarded by FY19 Q4; R&D and production level work**
We need your ideas and creativity to help solve our Technical Challenges!
## Dept 80 - Long Range Acquisition Forecast

<table>
<thead>
<tr>
<th>Requirements Description</th>
<th>Location</th>
<th>Incumbent</th>
<th>Anticipated Total Value ($M)</th>
<th>Anticipated Acq Strategy</th>
<th>Anticipated Solicitation Date</th>
<th>Estimated Award Date</th>
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<tbody>
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<td>Ship Cost Estimating</td>
<td>WB</td>
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<td>5.0</td>
<td>Small Bus</td>
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<td>FY19 Q1</td>
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<td>FY19 Q3</td>
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<td>FY20 Q1</td>
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<td>Sep-18</td>
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<tr>
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<td>Jul-18</td>
<td>Sep-18</td>
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<td>APMO Propulsor Demonstration Hardware</td>
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<td>VCS Multi-rotor/stator/HSB Production</td>
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**Points of Contact**

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Propulsor Acquisition Manager, Frank Jurado III, frank.jurado@navy.mil